THE JOURNAL OF THE FLORIDA MEDICAL ASSOCIATION
PUBLISHED MONTHLY

Volume XI St. Augustine and Jacksonville, Florida, February, 1925 Number 8

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ORIGINAL ARTICLES

THE CLINICAL RECOGNITION OF THE CARDIAC IRREGULARITIES*

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The advance in the past ten years in the science of cardiology has probably been greater than in any other branch of medicine. The introduction of the electro-cardiograph and the polygraph has made this accurate study and detailed analysis of the cardiac irregularities possible.

We have been compelled, in view of present known facts and ever-accumulating knowledge, to radically change, and in many instances entirely discard, our older ideas of heart failure.

To quote Thomas Lewis, "Recent study has done much more than lead to an accurate classification of the cardiac irregularities; it has thrown most of the major conceptions of heart disease into a melting pot, from which some have issued transformed and from which others will never emerge."

Familiarity with the heart's mechanism in health and disease is a first essential to a correct diagnosis and an effective therapy. Judging by present-day standards of accuracy, those who do not possess this familiarity are not competent to deal with cardiac patients. It is not sufficient that a patient's heart action is observed to be irregular, rapid or slow, but if possible a definite diagnosis of the arrhythmia should be made, for upon this rational therapy is based, and by this an accurate prognosis is made possible.

The writer believes that a knowledge of the mechanism of the heart's action in health and disease makes it possible to arrive at a correct diagnosis by the usual methods of physical examination and, with certain rather infrequent exceptions, makes the employment of the highly technical and mechanical devices now in use unnecessary.

You will pardon me if I take a few seconds for a short review of some of the newer facts of cardiac anatomy and physiology.

We have here a rather rough drawing attempting to show some of the more important structures of the heart which are concerned in the production of the cardiac cycle in health and disease. You will notice that the walls of the inferior vena cava, right auricle and right ventricle have been partially removed to expose the septa. The sino-auricular node or pacemaker of the heart is situated at the upper and anterior end of the sulcus terminalis (which is at the juncture of the superior vena cava, inferior vena cava and right auricle). The orderly rhythm of the whole heart takes its origin in this node. It must, however, be stated that in disease, other portions of the heart's musculature may become more irritable than the sinus node and may usurp its function, thereby giving rise to disordered rhythm. You will see here that the gavi enters the heart at this point and is the inhibitor of this node. The contraction wave extends outward from this point and an orderly contraction of the muscle fibers of the auricle results. When the contraction wave has reached this point, the auriculo-ventricular node, which is situated in the interventricular septum, it takes up the contracton wave and transmits it through the auriculo-ventricular bundle, represented here. This bundle divides and sends a branch to the right and left ventricle. The stimulus traveling along these branches reaches the ventricular muscle fibers, causing a coordinate contraction of the ventricular walls.

A few minutes will be taken to discuss in a very brief way the physiology of the heart muscle.

The heart, unlike other organs of the body, is unique in one particular. "It has only one physiological function to perform," namely, the proper and efficient maintenance of circulation. It is a good heart if it performs this function well and a failing heart when it falls short of this requirement. In order that the heart may maintain this function of circulation the tissues composing this organ have been endowed with certain definite attributes. First among these is its inherent power of stimulus production. That is, its tissue has the power of producing a stimulus which can excite the heart to contract. In health

*Read before the Duval County Medical Society at Jacksonville, February, 1925.

this faculty is maintained by the sinus node, but in disease the initial stimulus may arise from any portion of the heart tissue which may become more irritable than the node.

Second, the power of being able to receive a stimulus, that is, excitability.

Third, the heart muscle has the power of conveying a stimulus from fibre to fibre, which we will call conductivity.

Fourth, the power of contracting when stimulated.

Fifth, the power to retain a certain amount of contraction even when the active movement has ceased. That is tonicity. A few words are necessary in explanation of these five qualities of heart muscle fibre. The fibres of the heart, during the resting period, possess power of internally secreting a material which is capable of stimulating the fibres to contract. This material accumulates in the heart cell during a pause in the contraction. When sufficient has been stored to excite the heart to contract, the whole store is used up in causing the contraction. Immediately after the contraction the store again begins to accumulate, until sufficient has been produced to excite the heart to further contraction. This function, in cooperation with other functions of the heart muscle fibre, gives a rhythmical character to its contractions.

The heart muscle depends for its contraction upon its power of receiving a stimulus, that is upon its excitability. Immediately after the heart has been stimulated to contract, the fibres are no longer capable of further stimulation, excitability has disappeared and the heart is in what is called the refractory stage. This excitability begins at once after a contraction is concluded, and increases very rapidly during cardiac diastole.

The function of conductivity is possessed by the heart muscle fibres in a similar way as possessed by nerve fibres. Each muscle fibre has the power of conducting the stimulus to neighboring cells. This function is subject to exhaustion and like every other function of the heart, it is entirely abolished after it has been exercised and returns gradually.

The power of contractivity is the most evident of all the functions of the heart, for by this coordinate contractivity the circulation is maintained. After a contraction this function is completely exhausted and the power of contraction returns very gradually. This explains the fact that the strength of a contraction is directly proportioned to the length of diastole. The longer the period of cardiac rest the greater the energy stored up in contraction.

Tonicity is a characteristic property of all muscular tissue. The heart muscle likewise possesses this quality and does not relax to its full length during diastole. This is what is meant by heart tone and the recognition of this very important function contributes greatly to an understanding of some of the most significant features of heart failure, that is dilitation.

With this short review of the newer physiology and anatomy of the heart we are prepared to discuss in a brief way the commoner cardiac irregularities.

The first to be considered is sinus arrhythmia. These are the irregularities of the heart which are produced by interferences with the rhythmic impulses at the seat of their discharge. Any stimulation of the vagus curbs heart action. If the vagus is cut the inhibitory action of the vagus is lost and the heart will usually, in the human subject, rise to a rate of 150 to 160 per minute. The administration of atropine paralyzes the nerve endings of the vagus in the heart and produces the same effect of accelerating heart action. The stimulation of the vagus will cause a slowing of the heart to 50 or 60 per minute, and this condition is not uncommon in increased arterial tension, increased intracranial pressure, pregnancy, jaundice, convalescence from acute fever and, less frequently, other conditions.

Sinus arrhythmia is quite common in young children and is often found presistent in young adults. It is usually manifested by a waxing and waning of the heart action in each respiratory cycle. The pulse becoming faster as the lungs are filled with air and slowing during respiration. The differentiation from other similar arrhythmias is easily made as a rule. Anything that accelerates the heart action will abolish this arrhythmia, such as exercise, atropine, etc. Having the patient to cease breathing for a minute will cause the disappearance of the arrhythmia if it is due to respiration changes.

This condition is of no significance. It is not an abnormal condition and calls for no treatment.

Heart block will be the next condition considered.

It is defined as an abnormal heart mechanism in which there is a delay or failure of the ventricular responses to the aricular impulses.

Heart block occurs at any age. It has been

seen in the newborn and in all ages into the 80's and 90's.

It is much commoner in the male than the female. Heart block, either partial or complete, is usually indicative of widespread changes in the myocardium. Such as chronic inflammation, fibrosis, atrophy, calcification, an fatty degeneration of the tissues and those changes affecting the conducting mechanism of the heart.

The larger portion of chronic heart block is found in degenerative processes due to single or repeated attacks of rheumatic fever or the direct result of syphilis.

Heart block is readily recognized by graphic methods provided by the polygraph and electrocardiograph. However, the recognition of this condition is usually not difficult by the simple observation of pulse rate, regularity and heart sounds. Partial heart block may be inferred when there is a reduplicated first or second sound at the base. The auricular systole gives rise to a definite heart sound, which in health is not heard, as this sound is submerged in the sounds caused by ventricular contraction. When there is a widening of the time interval between the auricular and ventricular contraction, this auricular sound can be heard and carries a reduplication of the first sound at the base. In those cases where the a-c interval is great the auricular systolic sound will be heard in early diastole and causes a reduplication of the second sound.

Single dropped beats are not difficult to detect. If the heart which seems otherwise regular is interrupted by an occasional pause of unusual length, and the examination of the heart at the apex reveals no apex impulses and no sound during this pause, if the pause is not associated regularly with the expiratory phases of respiration, it can be attributed to heart block; you will find that if it is due to heart block the pulse will be accelerated by exercise and the block disappears only to reappear after a short period of rest, when the pulse has become slower again; a whiff of amyl-nitrite will also abolish this type of block. In any patient in whom the pulse rate is between 40 and 50 per minute, a 2 to 1 heart block may be suspected. There are two conditions which might mislead one. Pulsus Alternans; when the weak beat fails to reach the radical artery, the ventricular systole can, however, be heard and felt at the cardiac apex, this condition is extremely rare. The other condition which may confuse one is that of extra systole, in which the ectopic beat fails to reach the wrist; in this condition premature ventricular contraction can be appreciated at the cardiac apex. If not by palpation, more sure by auscultation. Three to one or four to one heart block may be detected in this same manner.

Complete heart block, that is dissociation of auricle and ventricle, occurs and is due to the same cause only more extreme than that of partial block. In these cases none of the auricular contraction gets through to the ventricle and the ventricle establishes its own rhythm, which is usually regular and about 30 per minute. You may safely conclude that heart rates at 35 or under are cases of complete heart block. There are other signs which are characteristics or pathognomic of this condition; when we get heart sounds of variability in quality which are constantly changing in character, independent of the respiratory cycle, we have complete heart block. The pulsation of the jugular veins, due to the more rapidly contracting auricle, may be seen and if counted are several times as rapid as the very slow pulse.

Overdosage with digitalis may be the cause of heart block, by its action in lowering the excitability of the auricular ventricular node.

One of the commoner arrhythmias is premature contraction of extra systole.

These are contractions of the heart which disturb the rhythmic sequences by appearing early and in response to impulses newly formed in the musculature of the heart. The recognition of this irregularity of the heart action is in the great majority of cases not difficult by means of auscultation.

Whenever the regular sequence of sounds is interrupted by two short, sharp sounds, followed by a long pause, extra systole may be inferred. There are a few exceptions to this rule. Sometimes the extra systole is so weak that the aortic valve is not lifted and you will hear only one weak sound, which is the first sound of the heart, and in cases where the extra systole is very feeble no sound may be heard, but in probably all cases the apex impulses can be palpated during the long pauses.

The most important of the continuous abnormal rhythms is that which is due to auricular fibrillation. This condition may be defined as a condition in which the auricles fail to contract en masse. The muscle activity of the auricular wall consist-

ing of fibrillary twitching, this is the true delirium cardis of the older writers.

The description of auricular fibrillation as given by Lewis, pictures the condition with such clearness that I wish to use his words: "The pulse is a medley of beats of many sizes, an intimate mingling of changing pauses; now the beats are almost uniform in strength and spacing; now feeble pulsations chase along rapidly; now the pulse is lost; now it returns with increased vigor."

In other words, when a patient presents a rapid and utterly disordered heart action in which there is no rhythmic sequence, the diagnosis may safely be made of auricular fibrillation. Another most reliable sign is that of pulse deficit. In no other pulse irregularity is the discrepancy between the pulse and apex beat so marked or so persistent.

Auricular flutter is a much rarer condition. It is a condition in which the contraction wave follows a circular and never-ending path in the auricle. Their currents being completed at the rate of 240 to 350 per minute. In this condition the auricle as a whole never enjoys a true diastole. Some portion of the musculature is in systole at all times.

The recognition of this condition is somewhat more difficult than that of auricular fibrillation, and the polygraph and electric cardiograph is sometimes necessary to make the diagnosis certain. However, when we find in an elderly subject a regular and accelerated heart action at rates of 120 to 160 per minute, which is notable for its constant rate under all sorts of conditions and tends to persist without apparent cause, such as fever, toxema, hyperthyroids, tuberculosis, etc., is generally the result of auricular flutter.

Pulsus Alternans is a condition in which the ventricle, beating with regular rhythm, expels larger and smaller quantities of blood at alternate contractions. The recognition of this condition, while very difficult without access to graphic methods of study, is in some cases possible from observation of the pulse alone. In a case of renal disease or arteriosclerosis when the pulse tension is high, Cheyne-Stokes breathing perhaps present and the pulse is regular in rhythm, but variable in force so that each alternate beat is strong and each alternate beat is relatively weak, one is dealing with Pulsus Alternans.

It is unfortunate indeed that most instances of Pulsus Alternans cannot be recognized otherwise than by instrumental means, as this grave and almost always fatal condition possesses a prognostic omen of almost certain reliability.

The writer only in rare instances has been able to clearly recognize the difference in the pulse waves by palpation of the radial impulses. The employment of the Sphygmomanometer in the recognition of alternations of the heart is of great value and should not be overlooked. If in the course of a routine blood pressure determination the pulse suddenly doubles in frequency as the pressure is released from the armlet, and this observation can be checked and rechecked, the same phenomenon appearing at each trial, and if the beats are regularly spaced, regardless of the force, Pulsus Alternans is a certainty. The writer has found this method a very valuable and reliable one in the absence of graphic studies.

Simple paroxysmal tachycardia may be defined as a condition in which, from time to time, the normal mechanism is interrupted by a series of rapid and regular beats, varying in rate from 100 to 220 per minute, the series starting and ending abruptly.

The clinical recognition of this condition, most often, is based on the symptoms given by the patient, as seldom is the abrupt beginning or ending of the series of rapid contractions to be witnessed at the time of observation. The subjective and objective symptoms vary, depending on the length of the attack. The paroxysm may last from a few seconds to two weeks. Those of a few hours' duration being most frequently seen. The very short attacks are often unnoticed by the patient, giving rise to no subjective symptoms, while those of lengthy duration give rise to the usual symptoms of grave heart failure. At the onset the patient feels a sudden sense of discomfort in the precordia and palpitation, nausea and vomiting, together with salivation and diarrhea are common. If the attack should continue precordial pain, dyspnœa, syanosis and engorgement of the neck and face, the patient becomes haggard and restless, the liver enlarges, the heart dilates and signs of visual stasis become marked if the attack continues long. The attack, even when progressing to this degree of cardiac decompensation, ends, as a rule, abruptly and within a few minutes the objective and subjective symptoms disappear and the patient rapidly recovers.

In concluding the writer wishes to state that it is evident that only with a clear understanding of the pulse irregularities is it possible to decide, even in a preliminiary way, which are serious;

which interfere with the effective work of the heart and which can be cured or benefited. In many instances an answer to these questions cannot yet be given; however, much is known with remarkable certainty and these facts should be recognized by every physician who ministers to the cardiac patient.

ABDOMINAL PAIN IN LOWER RIGHT QUADRANT

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Pain in the lower right quadrant causes more anxiety today than pain in any other part of the body unless it should be in the region of the heart, not that most of human ills have their origin with pain in the lower right side but because during the last 30 years so much has been said and written about appendicitis and the importance of early diagnosis and removal that a majority of people feel that pain in the lower right quadrant must be due to appendicitis. It is a common thing to be called and upon arrival have the patient state that they have a pain in their right side and think it is appendicitis. Sometimes they are right but often wrong, as many other conditions also cause pain in that region and acute appendicitis does not usually begin with pain at McBurney's point. Among the most important conditions giving pain, chiefly in the lower right quadrant of the abdomen are: Appendicitis, right salpingitis, right ruptured ectopic pregnancy, right ovarian cyst with twisted pedicle, stone in right ureter and dietels crisis, pericecal tuberculosis, intestinal obstruction about the cecum, psychoneurosis or fear of appendicitis, right lobar pneumonia in children (early). Other conditions which should be kept in mind are: Right inguinal hernia, mucous colitis, prolapsed kidney with stone, dysmenorrhea, etc. However, the ones I shall dwell on are those which are frequently found, the differential diagnosis very important and often impossible without operation.

I will attempt to give the most important symptoms and findings for a differential diagnosis.

ACUTE APPENDICITIS.

History of digestive disturbance or constipation. Onset of acute attack. Sharp pain about umbilicus or right iliac fossa becoming well localized in right lower quadrant within 24 to 36 hours. Pain may be constant with acute exacerbations for a while, but tends to become more of a continual sharp pain. Peristalsis continues for a time, but unless cathartics are given is inhibited in a few hours. Nausea or vomiting comes on soon after the onset of pain. In children vomiting is very severe. Rise in temperature as a rule takes place within the first six hours, but may not go high and may return to normal. Pulse rate is increased more than we would expect by the small amount of fever. The pulse is of a small hard character and usually is 90 or above when pus is forming. Marked tenderness at McBurney's point with rigidity of right rectus muscle is quite constantly found. When the tenderness is most marked at the right mesenteric point (a point 1½ inches to the right of umbilicus) it is likely to be chronic appendix or psychoneurosis. The leucocyte count is elevated and varies with progress of disease. Sodern states that a rise in leucocytes is not so important as an increase in percentage of polynuclear cells. Wilson, of the Mayo Clinic, and Walker, in checking up in the military camps, found the same rule to hold true. They find that if more than 70% are polynuclear cells pus is likely to be present, while a polynuclear cell count below 70% is likely to be present when the trouble is of a catarrhal nature even though the total white cell count is high. Posture of patient often helps as it is quite common to find the right knee drawn up. The abdomen is usually rather flat early and the breathing of a thoracic type. On palpation the induration about the appendix can often be felt, especially in slender people.

CHRONIC APPENDICITIS.

This usually is not of such an alarming nature and we get a history of frequent or constant discomfort in the right iliac fossa and more especially so when the colon is distended. There is seldom any marked rigidity of the abdominal muscles. The appendix is sensitive to pressure. Dr. Freedman, of New York, states that in about 85% of the cases there is an increase in large mononuclear or transitional cells or both with chronic appendicitis which is not found in other abdominal conditions. The X-ray may help to diagnose a chronic appendix.

Treatment of acute appendicitis is immediate operation if seen within the first 24 hours and diagnosis is fairly positive. If for any reason an immediate operation cannot be done some hold it

is proper to give castor oil, provided it can be given within the first 10 hours of onset. Most men feel that it is best to give nothing by mouth and only a small enema under slight pressure per rectum, if anything. Absolute rest in bed with hot water bottle or ice cap over appendix is important. At present there is a strong tendency to use heat instead of cold, but we will not attempt to settle this point because equally good men hold opposite views. If seen after the first 24 to 36 hours and the symptoms are not growing worse, there is a question as to what is the best procedure. In all cases when the general condition grows worse while under observation for four to six hours it is best to operate at any stage. But if they improve it is considered best to wait to see if the attack will subside or the appendix become walled off, as it is not as safe to operate during the second or third day as it is the first or sixth day. If the obscessed appendix has ruptured it is considered best to only insert drainage with the least possible trauma and wait to a later date to have the appendix removed.

Treatment of chronic appendicitis is not always helped by operation. In cases of visceroptosis there is often a low grade of infection involving the ileum, cecum, and colon. In these cases very little benefit is derived by operation. In such cases it is better to use hot fomentations and rest in bed during the most sensitive periods and attempt to correct the visceroptosis. Most cases of chronic appendicitis receive much benefit by operation.

ACUTE SALPONGITIS, RIGHT.

There is usually a history of infection and vaginal discharge preceding the onset of abdominal pain.

Symptoms: Acute pain and tenderness are present over the right ovary and tube. The uterus fixed to a palpable mass. If the tube has ruptured the temperature rises fast to 103–104, the pulse becomes rapid, 120–140, and the patient is in extreme pain. Operation is indicated in all cases of ruptured tube as soon as possible, but if the tube has not ruptured there is a good chance that it will subside under non-surgical care. Rest in bed, hot or cold applications to lower abdomen, etc. I believe a majority of pus tubes come to operation sooner or later, but after the acute symptoms have subsided the pus is practically sterile, so that operation is attended with less danger than during the acute inflammatory stage.

RUPTURED RIGHT TUBAL PREGNANCY.

There is a history of missed menstruation, later on there may be some pain and flowing, but usually nothing to warn the woman of danger until she is seized by a sharp pain in side. Sudden collapse and pallor, subnormal temperature and a rapid pulse, a low hemoglobin and red cell count together with a mild leucocytosis is noted. On pelvic examination a mass can be palpated on the affected side while the uterus is somewhat enlarged. On percussion there is flatness. Treatment is surgical, repair of bleeding vessel, as soon as possible or as soon as the patient has recovered from shock sufficient to permit operation. Many would recover without operation, but others have a second hemorrhage as soon as the blood pressure has partly adjusted itself. It is probably safest to operate after the patient has recovered from shock. Warbasse states that the mortality among patients operated during the acute depression following hemorrhage is about 50% and that the death rate in those who are allowed to react first is 5%, but Deaver holds that it is wrong to wait while bleeding is going on. Perhaps the safest rule would be to wait if the shock seems to be subsiding and operate if growing worse. In a majority of cases I believe the first hemorrhage has stopped before the surgeon sees the case.

RIGHT OVARIAN CYST WITH TWISTED PEDICLE.

This may give a history of palpable mass in the right iliac fossa or the ovarian cyst may have been found on previous examination. Sudden onset of pain in right iliac fossa, pain may intermit. Tenderness and muscular spasm are not usually marked. There may be fever and leucocytosis. On pelvic examination a mass is palpable in the region of the ovary, fluid is often present in the abdomen. Operative treatment is indicated.

RIGHT DIETELS CRISIS OR STONE IN URETER.

Pain may be severe with sudden onset. Tenderness and spasm not so marked as in appendicitis. More tenderness in the region of the right kidney. Usually no fever or leucocytosis. Urine test for blood. Ureteral catheterization and X-ray aid the diagnosis. For stone in right ureter operation is indicated if the stone cannot be passed by relaxation under morphine or dilitation of ureter, also in those cases in which pus appears in the urine and stone still fails to pass.

PERICECAL TUBERCULOSIS.

The onset is insidious and the pain not usually severe. Tenderness is located at McBurney's or

about the cecum. There may be a palpable mass at the cecum and there may be some rigidity. One usually gets a history of pleurisy or tuberculosis and failing health which helps to make the diagnosis. Treatment is to build up the general health.

INTESTINAL OBSTRUCTION.

May be located in the lower right quadrant. History of previous abdominal operation is important. Onset of pain is sudden and very severe. Nausea is present with partial obstruction and severe vomiting is the rule with complete obstruction. The temperature is normal with partial obstruction and subnormal with complete obstruction for awhile, but may rise later on, due to inflammation. At times the obstruction can be palpated during peristalsis. Enemas do not give good results as a rule and the patient feels that the intestines are paralyzed below obstruction. Cathartics fail to act if they have been taken. The treatment indicated is to operate *immediately*.

RIGHT INGUINAL HERNIA.

This should always be looked for with pain in right lower quadrant, but is not usually hard to diagnose and the treatment need hardly be mentioned here.

LOBAR PNEUMONIA.

Pneumonia, especially in children, is always to be kept in mind when diagnosing a condition causing pain in the lower right side. Many cases of pneumonia have been operated on for appendicitis. Both give a rise in temperature, increased leucocytosis as well as increased polynuclear percentage. The leucocyte count is usually too high for appendicitis and respiration more rapid. Auscultation will do no harm and may save the child's life as well as save the surgeon lots of embarrassment.

MUCOUS COLITIS.

This condition often gives pain in the lower right quadrant and may give increased temperature with vomiting and a mild leucocytosis. It occurs in neuratic people. The history of the case and an examination of the stool usually makes a diagnosis easy. Abdominal crises of tabes has been mistaken for appendicitis but should not be confused.

Psychoneurosis of fear of appendicitis may simulate appendicitis very closely, but as stated before, the point of greatest tenderness is at the right mesenteric point instead of at McBurney's. Usually found in neurotic unmarried women. No spasm of muscles on the right side, excepting as the patient holds the abdomen rigid, no increased leucocytosis, with palpable mass.

There are no general rules that always hold true regarding pain in the lower right quadrant, therefore mistakes in diagnosis and treatment are easily made as all of us know from our own experience.

PAIN IN THE RIGHT UPPER QUADRANT

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Pain in this region, like pain in other parts of the varieties are hard to define. It is a difficult the body, varies considerably in character, and matter to get the patient to describe them.

Pains are sensations or discomforts transmitted to the brain by the nerves. They vary from agonizing pains to those hardly perceptible. They may be constant, intermitting, throbbing, cutting, dragging, shooting or a sensation of constriction or distention. They may be produced, increased, diminished or effected by position, occupation, exercise, eating, pressure, cold and heat.

Pains in the right upper quadrant may result from abnormal conditions within this area or may be reflex or referred pain.

Pains from pathology within this quadrant are due to: First, the liver—Cabot's statistics would indicate that cirrhosis and passive congestion are the most frequent causes of pain in this region. These pains are dull and constant. If from passive congestion, exertion increases and rest relieves pain to a certain extent. Carcinoma of liver and abscess of liver produce constant but not necessarily severe pain.

Second, gall stones cause intense paroxysmal pains when occluding a duct.

Third, cholecystitis pains are more constant and less severe than gall stone pains.

Fourth, ulcers or carcinoma of the pyloric end of stomach, another cause for pain in this region, produce pain on eating; while duodenal ulcers are relieved upon eating. They come on at regular intervals following meals.

Fifth, renal stones are responsible for very

severe paroxysmal pains of this area. Pain begins in kidney region in the back and tends to extend forward and downward and involves the genito-urinary organs reflexly.

Pyelitis, ptosis, renal abscess, hydronephrosis and occasionally a high appendix are all responsible for pains in the right upper quadrant also. Pain is invariably found in these organs or tissues involved and is increased on pressure over these organs or tissues.

Referred pains in the right upper quadrant are due to constipation, pylorospasm from appendicitis and other intestinal conditions; to syphilis in form of gastric crises or to constricting sensation around the chest; to pneumonia and pleurisy of right lower lobe and to kidney involvement of opposite side. Referred pains are not affected by local pressure. Bearing in mind these referred pains will prevent many an erroneous diagnosis.

While pain is very unpleasant and even very distressing at times, we should remember that it is of great value as it is one of our best aides in diagnosis. It is also a blessing in disguise, for the patient, revealing to him the encroaching enemy, and warning him to call on the physician or surgeon to arrest the malady before it is too late.

THE PRACTICAL APPLICATION OF THE MINIMUM STANDARD

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The Minimum Standard of the American College of Surgeons has now been in continuous application for over six years, and its success completely assured. However, there are many practical problems which arise in the institutions of smaller size and away from the great medical centers. Some ideas and conceptions of the solution of these problems, gleaned from a survey of 250 smaller hospitals under the auspices of the American College of Surgeons, are herewith presented.

It has often been felt by doctors who have not thoroughly understood the purports of the minimum standard that the proposition was perhaps more idealistic than practical, and that the only advantage gained consisted in several thousand feet of additional red tape in the care of hospital patients. Again, many have noted the remarkable progress of the movement and have attempted to conform dogmatically to its precepts without a thorough understanding of its real intent. Often the conclusion may have been drawn that it was not worth the effort to conform to these requirements solely to satisfy the American College of Surgeons, or to be placed on an approved list. This is not the intent of the Minimum Standard; its real purpose is hospital betterment, not idealistic nor theoretical, but absolute, concrete betterment.

Little need be said concerning the need for adequate laboratory, X-ray and therapeutic facilities—their worth is too well and generally recognized to merit discussion. But in regard to the keeping of records and its close adjunct, staff analysis, there is much to be said (and room for considerable convincing).

It is generally conceded that records are of value in return cases, research work, and from the medico-legal aspect. It is often (and justly) held that the doctors are not able to carry on research work due to strenuous practice and lack of material, and, further, that a brief card with essential information would fill the legal aspect fairly well—not as well as a complete record perhaps—but, nevertheless, the need is not sufficient to demand the extra effort of keeping records. The answer to this is: The greatest benefit from records is obtained before they are committed to shelves in the analysis of cases by the attending physicians.

In an average case the opinions, ideals, etc., regarding a patient, change with the cause of the disease until at the end, the final concept is entirely different from the original; a change so gradual that it has escaped the consciousness of the doctor. It is the purpose of the record to recall the earlier impression.

Gross mistakes are generally quite apparent and their realization definite, but the innumerable chains of trifling errors in technique and diagnosis pass unnoticed, if no record be kept. A homely example is the case of an operation for "gall bladder or appendix"—finding either at operation the doctor is completely satisfied that his diagnosis was 100% correct, whereas, if he had committed himself to one, the finding of the other would bring about a tendency to remedy the small error the next time.

It is not the object of the Standard to criticize

errors, but to bring about a realization of their occurrence. The doctors themselves regulate and analyze the work done; furthermore, the Standard does not ask that work be done which appears unnecessary in the doctor's judgment; but it does ask that whatever is done be recorded so that doctor and patient may benefit by the knowledge of error or omission. The question is often asked, "Is it necessary to make a complete physical examination on a case of broken finger, to satisfy the Minimum Standard?" The answer here again is: "Do what you believe to be necessary and omit what you believe to be unnecessary, but record whatever you do, so that you and your staff may be able to analyze the work in case things go wrong with the patient." In other words, the doctors are regulating themselves and the College of Surgeons is taking no part in dictating medical service to patients.

Furthermore, if accurate accounts show that an average amount of thorough and efficient medical attention has been given the patient, the college is able, through its approved list of hospitals, to furnish people entering an approved institution a guarantee that therein such will be accorded them. And this guarantee is based on written fact, and not on hearsay nor idle supposition. It is necessary that history, physical examination and provisional diagnosis be recorded within forty-eight (48) hours to show this.

The monthly conference of doctors who have had cases in the hospital is not intended to be for the purpose of discussion of interesting cases, nor of case reports, though these may well be brought up in conjunction, if time and inclination permit; what is asked is that there be an analysis, a business-like review, not of the successes or interesting things, but of the failures, *i. e.*, the deaths and unimproved cases. For this analysis to be successful it must be based on recorded fact; this is not generally accomplished by the presentation of the case by the attending physician. He has not tried to cause the death of his patient, but has done his best to avert it and, so, naturally, defends and righteously explains over the facts of the case. He presents his final conception rather than the first impression. To overcome this bit of adverse psychology, the record should be submitted by a record clerk, or the chairman, and discussion called for from among the staff impartially, calling on the attending physician last to close the discussion. Cards which bear the names of the members of the staff may be drawn to call for discussion. In order for this plan to be successful, each death must be gone over routinely each month; in case there are too many, the record committee will have to sort out the cases for discussion. Each doctor who has had a death should be especially notified of the meeting by letter. With the analytical side of the meeting completed, the remainder of the time—if any—may well be devoted to the usual scientific discussion. The value of autopsies with reports, as an adjunct to analysis, cannot be over-emphasized. The benefit derived from a few such presentations will generally furnish stimulation to further efforts.

Furthermore, the time is not far distant when an unstandardized hospital, which is sued by an individual for malpractice, or lack of care for its patients, will be at a distinct disadvantage in the defense of its suit—particularly as the majority of hospitals become standardized. It is also a well-known fact that nurses prefer to take their training in approved hospitals.

With the definite idea in mind of exactly what the Standard intends to accomplish, another problem arises: "What is the most simple, concise, and efficient methods of conforming to the Standard?" Herewith is presented one concept of an efficient method of so doing:

(1) Suitable and applicable record forms.

It seems definite that the psychological hazard is the biggest obstacle in the way of a successful record department. Slight objections become mountains when coupled with the subconscious hatred of the procedure. So also the tendency to forget them is many times exaggerated; in other words, there seems to be a very definite Freudine complex established in the minds of most doctors in this regard.

A complete record should consist of a careful case history, including identification data, family, past and present history, physical examination, provisional diagnosis, progress notes, laboratory and X-ray reports, consultation reports, a final diagnosis, and a condition on discharge. Any record which contains a complete and logical account of a case is satisfactory, regardless of the form used.

In the Florida East Coast Hospital, at St. Augustine, the forms herewith presented were introduced and have met with approval. It is to be emphasized that the American College of Surgeons has not accepted these forms as a standard,

but have approved several hospitals in which they are used. The ideas were obtained from the Mayo Clinic forms and those of the City Hospital at Thomasville, Ga.

The advantages of the suggested physical examination form are:

(a) It gives an accurate and complete summary of just what has been examined, just what has been found wrong, and what was not examined.

(b) It is simple and concise.

(c) The doctor's writing is devoted to description only of positive findings, which is not nearly as irksome as describing the negative.

(d) The gist of the record stands out at a glance, and other forms may be constructed as desired.

2. A twenty-four-hour check:

Someone (in open hospitals, not a doctor) should be required to examine each current record daily. Each new admittance should be supplied with a history, physical examination, and provisional diagnosis within twenty-four hours, if the guarantee of the Minimum Standard is to mean anything. If this has not been done, a red tag should be attached to the chart; this must be large enough and red enough to break through the doctor's consciousness. The words, "Incomplete Chart," may be printed upon it. The red tag should not be left on more than twenty-four hours, for, if the record has not been completed (after forty-eight hours in all), personal effort of the supervisor must be made to get the chart completed. Failing, it should be referred to a record committee and in turn to the general staff, where it should be decided whether or not the doctors intend to go ahead with the minimum standard; for, if action is not taken on the neglected cases, the red tags soon become a laughing stock and are inefficient in their purpose. This daily check should be a matter of only a few minutes a day in the average hospital of less than 200 bed capacity.

3. Final check before filing:

Each record should contain history, physical examination, provisional diagnosis, progress notes, condition on discharge, final diagnosis, and operative report, if the case has been operated upon. It should never be filed until these have been completed.

4. Operative charts:

Here again, responsibility may be loaded onto someone who will shoulder it; that is, the operating room supervisor, or the anesthetist, should see that each chart is completed from dictation before the doctor leaves the operating room, preferably while he is closing up. The important thing is to have someone responsible for their being completed in every instance.

5. Staff analysis of records of unimproved cases and of deaths, as outlined above:

Each doctor should mark the charts of the additional cases that he wishes to have brought up at the staff meeting.

In closing, I wish to emphasize that no originality is claimed in the above presentation, but it is hoped that a free discussion of some of the problems encountered in the standardization of hospitals may exert some helpful influence in its general adoption.

PAINS IN THE LEFT ABDOMEN

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In discussing this large subject it will not be my purpose to deal extensively with the conditions which are analogous to those discussed in the previous papers—merely taking time to mention them in the course of discussion, but to devote most of the time allotted my paper to the primary causes of pain in the left abdomen, exclusively, and especially to painful conditions caused by disturbances of the spleen. However, before beginning that portion, I will discuss the other indirect and direct causes of pain.

The *Stomach.*—Any painful condition of the stomach may cause pain to be felt below the left costal margin. In particular a new growth or an ulcer toward the cardiac end may produce it. Also flatulent distention of the fundus may be a cause, which can be diagnosed by the fact that the pain disappears on the eructation. Also in rare cases of cholelithiasis pain is sometimes referred to the left hypochondrium.

The *Left Kidney.*—Stones in the left kidney, movable left kidney, perinephric abcesses, renal colic, and pyelitis may be causes of pain in the left hypochondrium just as they have been described in the right.

The *Colon.*—A new growth in the splenic flexure of the colon, visceroptosis with acute angulation of the splenic flexture, or obstruction in the descending or sigmoid colon may cause pain in the left hypochondrium. In the case of a tumor diagnosis can usually be arrived at by manual palpation; in visceroptosis there is usually a similar falling of the other organs of the abdomen together with the general asthenic picture seen in most of these cases, but finally diagnosed by gastrointestinal series; a new growth in the descending or sigmoid colon may be cause of pain or the drooping of the sigmoid colon alone with its subsequent accumulation of feces may cause a feeling of pain and weight in the left abdomen, usually disappearing after the administration of a few large enemata.

Subdiaphragmatic Abscess.—In this case there will usually be past history of previous gastric trouble or some suppurative condition in the abdomen, most commonly this occurs on the right side. There would be pyrexia and leucocytosis; also usually an abdominal swelling which does not move with respiration; however, it is not unusual to get indications of pleurisy at the base of the corresponding lung. The use of X-ray may help in locating the abscess, but the exploring needle should not be used except when the patient is on the operating table and one is prepared to open the abscess at once if found.

Intercostal Neuralgia.—This is another primary cause of pain on the left side, but has to be differentiated from pleurisy of the diaphragmatic type. In pleurisy a friction sound can usually be obtained in the early cases; however, this is not true after some effusion has taken place; in intercostal neuralgia there will be tender points along the course of the affected intercostal nerves; another helpful point is that in pleurisy if the body is bent toward the well side the pain is increased, in intercostal neuralgia bend the body toward the affected side to increase the pain. Diaphragmatic pleurisy may be very difficult to differentiate from obscure abdominal conditions, especially when the inflammation occurs along the outer edge of the diaphram when the pain is referred along the course of the dorsal segment to the abdomen; whereas, if the inflammation of the central portion exists then you may expect pain to be referred to the region of the neck.

Herpes Zoster may also cause pain on the left side along the course on the corresponding nerves. The diagnosis of this is usually cleared up by the appearance of the eruption; however, the pain may persist long after this has disappeared.

Spleen.—Pain due to this organ is either caused by enlargement or the splenomegalies—the intensity varying with the type—or perisplenitis, which is sometimes called capsulitis or capsular splenitis. There is not always the subjective sensation of pain, but in the majority of these cases pain is elicited upon examination with light palpation, hence in the discussion I will deal with the splenomegalies, inflammation, and distention of the capsule in a differential manner.

A *movable or wandering spleen,* also termed a *floating, dislocated spleen* and *splenoptosis* is very rare and in most instances found in women. It is due to a relaxation and elongation of the suspensary ligament which is connected with the diaphragm, because of increased weight, or traction upon it by neighboring organs and most commonly it occurs in conjunction with general enteroptosis and rarely as the result of traumatism. The symptoms consist of a dragging sensation on one side of the abdomen with backache and recurrent headaches, digestive disorders, lassitudes, and insomnia. Direct interference with neighboring organs through pressure may cause corresponding symptoms. *Torsion* or twisting of the pedicle may bring on alarming phenomena quite suddenly, especially if the torsion is complete. These may include sudden enlargement of the organ, severe local pain, marked pallor, with anemia, fever, uncontrollable vomiting, marked shock, and collapse. The perisplenic tissue may become inflamed when the torsion is incomplete and give considerable local pain.

Acute hyperemia of the spleen occurs in acute toxemias, especially those attending typhoid and typhus fever, septimia, glanders, anthrax, malaria, and less frequently as a result of intoxication by a drug. This may also follow traumatisms or obstruction by emboli. The symptoms consist principally of the enlargement of the spleen and pain in the splenic region. The pain may be absent and only tenderness on pressure and sensation of weight.

Abscess of the Spleen.—May occur as result of infection by neighboring ulcerative processes, but as a rule this is caused by septic emboli. Also it may occur as a complication of splenic congestion in course of typhoid, malaria and other infectious

fevers. Pain in the splenic region, tenderness locally and the usual symptoms indicating suppurative process—chills, fever, nausea, vomiting, prostration, more or less marked leucocytosis—constitute the picture usually obtained. In most cases enlargement of the spleen may be detected.

Rupture of the spleen is most often caused by *malaria,* although traumatisms and other infectious processes may cause it. The first symptom is abdominal pain followed by severe shock, pallor, faintness, coldness of the extremities, etc. If hemorrhage be very severe the patient may die within an hour. Muscular rigidity is also a very marked early symptom. If the hemorrhage be not so severe, symptoms of the accumulative blood mass together with the shock and pain point clearly to the complications.

Splenomegaly or *Chronic Enlarged Spleen.*—This is but a symptom of many disorders, but due to the weight and consequent stretching of the capsule in most cases it causes localized pain. Hence I will discuss the principal ones of this class. The *infectious type*—syphilis, tuberculosis, and malaria, are a very common cause of splenomagalia. The individual symptoms of these respective diseases serve to differentiate their origin.

Thrombotic enlargement of the spleen may be caused by thrombosis of the splenic vein, which in turn may be caused by degenerated processes of itself or its radicles or subsequent pressure from the surrounding organs, tumors, etc. A common complication is *infarction of the spleen.* The first sign of infarcts in the majority of cases is a sudden excruciating pain, strictly localized, not radiating, persisting for sometime unmodified, but gradually subsiding in the course of a few days. An infarcts of spleen may occur with a few symptoms suggesting ileus or peritonitis, probably a reflex origin. These symptoms may be accomplished by slight temperature and moderate leucocytosis.

Unlike all other splenomagalies, the enlargement from *emyloid degeneration* of the spleen following tuberculosis, syphilis, chronic separative processes, carcinoma, malaria, gout, alcoholisms, etc., is not sensitive to pressure.

Besides the foregoing splenomagalies, others are occasionally encountered. Besides splenic anemia and polycythemia, splenomedullary or myloid leucemia is a frequent cause of very great enlargement of the spleen, the organ often reaching below and beyond the umbilicus. This causes abdominal pain in the splenic region often due to perisplenitis and to adherence of the enlarged organ to various viscera. It is easily diagnosed by the marked leucocytosis and the other symptoms of leucemia. In *pseudo leucemia or Hodgkins disease,* the spleen is enlarged in a majority of cases but not to the extent observed in leucemia. Hence it is seldom associated with pain, there is a progressive secondary anemia and the enlargement of the lymph glands serve to differentiate it from pernicious anemia and other blood disorders in which the spleen is enlarged. Closely allied to this blood disorder is one described by Banti under the name of "hemolytic" splenomagaly, in which hyperplasia of the organ also enhances its hemolytic activity, probably due to the influence of some undetermined poison. It is characterized by a rapidly progressive anemia, jaundice, without clay-colored stools, urobilinuria and bilirubinria, and a special hemopoietic reaction of the bone marrow as shown by the presence in the blood of normoblasts, myleocytes, polychromatophilous erythrocytes, and erythrocytes with basophilic granulations. The importance of recognizing this condition lies in the fact that permanent cure may be obtained by means of splenectomy. This condition has to be differentiated from cirrhosis of the liver, which at times also shows enlargement of the spleen; however, the hepatic symptoms usually predominate and the history of alcoholism and tardy initiation of hemorrhages. Also in Hanot's hyperthropic cirrhosis of the liver the large hard and smooth liver, the persistence of jaundice and the prominence of the hepatic symptoms help to differentiate it from Banti's disease.

Parasitic Splenomagaly also occurs and the most common form met with is that due to *hookworm disease.* The profound anemia, together with a great enlarged spleen and dropsy may mislead to a diagnosis of the splenic anemia; however, eosinophilia together with a stool examination will reveal the true identity of the case. Ascarides may also be attended by enlargement of the spleen but differentiated as above.

Also *hydatid or echinococcus cysts* may involve the spleen in about 3% of all cases, these cysts may attain a large size and occur as primary growths in over one-half of the cases.

In a rough way we have scanned over the various causes of pain in the left side, by no

means going into detail, but I trust we have covered it sufficiently thorough in order that individually we may be able to obtain some aid in arriving at diagnosis of the vague conditions with which we daily come in contact. If this paper has been of any assistance in arriving at a conclusion in a single case, I feel that the time spent is well recompensed for.

THE NON-OPERATIVE TREATMENT OF HEMORRHOIDS

For the past fifty years the non-operative treatment of hemorrhoids has been a much-discussed subject, alternately praised and condemned by the profession at large, and is still looked upon by many as dangerous and unsatisfactory, but there is an old saying but a true one nevertheless, "The proof of the pudding is in the eating thereof"; in other words, the efficacy of any line of treatment must be judged by the results obtained thereby.

It is the duty of the physician to relieve and cure his patients by that method that entails a minimum loss of time, danger and suffering.

It matters not whence comes the source of relief, the true physician will select his remedies and adopt methods for the relief and cure of his patients irrespective of schools, pathias or isms, his two great objectives being: First, relief from pain; second, removal of pathology and restoration to normal conditions.

In the year 1871 Mitchell, of Clinton, Illinois, began treating hemorrhoids by injecting them with carbolic acid solution. He made much of the fact and heralded to the world his discovery, advertising his method of painless and permanent cure of hemorrhoids or piles without the use of the knife; later on he sold his formula to anyone who would pay his price and, "a la Abrams," promise secrecy regarding its makeup, with the result that the country was soon deluged with quacks claiming wonderful cures of piles without the use of knife or anesthetic, and as Collier F. Martin, of Philadelphia, states in a paper read before the American Proctologic Society in 1904: "In spite of unscientific and unsurgical methods the results obtained by these quacks were wonderful, and the regular profession found that many patients were being treated and cured by this method. Careful investigations by Andrews resulted in his publishing in 1876 a number of formulas employed, each one of them having for its base carbolic acid, some of the solutions containing as much as 20 grains to the ounce. It is truly remarkable, considering the class of men engaged in this work and the crude manner in which the treatment was carried out, that there were not more fatal results, the mortality reported being considerably under one-half of 1 per cent, while such complications as hemorrhage, pain, and sloughing aggregated about 3 per cent." According to Tuttle other complications occurred, such as embolism of the liver; dangerous prostration, 12; abscess of the liver, 1; permanent impotence, 1; stricture of the rectum, 2; carbolic acid poisoning, 1; and severe inflammation, 10. As Tuttle truly says: "Any other surgical operation for hemorrhoids in such inexperienced and unscientific hands would have produced a larger mortality and a longer list of accidents."

Andrews in his book, "The Surgery of the Rectum," published in 1902, says: "The use of carbolic acid is still to my mind a legitimate treatment of some cases, but liable to be followed by very disagreeable consequences."

Cripps, in 1884, in his book, "The Diseases of the Rectum and Anus," reaches the same conclusions. Gant says: "Only small piles which bleed freely and are situated above the grasp of the sphincter muscle should be injected."

Kelsey states his objections to the treatment as follows: "Pain, ulceration, marginal abscess, fistula, the impossibility of giving any definite prognosis as to the length of time necessary to effect, or the amount of suffering the treatment will entail, and the fact that the treatment does not result in a radical cure, but that the tumors reappear after two or three years."

The foregoing extract shows that the injection method was taken up and used by some of the foremost proctologists and that some of them are still using formulas with a carbolic acid base.

In 1916 E. H. Terrell, of Richmond, Virginia, caused no little stir in the proctologic fraternity by reading a paper in which he reported the successful treatment and cure of 163 cases of hemorrhoids by the injection of quinine and urea, which brought about much discussion by such men as Collier Martin, of Philadelphia; A. B. Graham, of Indianapolis, Ind.; Lewis J. Herschman, of

Detroit; Alfred J. Zobel of San Francisco; J. Rawson Pennington, of Chicago, Ill.; many of whom are now using quinine and urea in the treatment of selected cases of hemorrhoids. It was my good fortune to have known Terrell for several years, before he read or brought the attention of the American Proctologic Society to the value of quinine and urea in the nonoperative treatment of hemorrhoids and to have been privileged to assist him in some of his experimental work along this line, and since that time I have treated at least 80 per cent of my hemorrhoidal cases successfully with quinine and urea, and it is to this method of treatment that I shall confine my remarks.

When quinine and urea is introduced into the tissues a fibrous exudate is thrown off from the adjacent blood-vessels and this exudate in turn impinges upon the lumen of the vessels, causing a retardation of the blood-current at that point. If the exudate is too great or if the vessels are sufficiently diseased a sloughing will be the result, so that a proper strength solution of quinine and urea, a solution short of complete strangulation and sloughing, must be decided upon before a cure can be brought about.

It is my custom to use solutions of 5 to 10 per cent, judging each individual case according to the length of time the hemorrhoids have existed and the amount of fibrous tissue present. I have never had any trouble from swelling, ulceration, sloughing, or infection following the use of quinine and urea which I have used in 80 per cent of my hemorrhoidal cases covering a period over eight years.

I make my injection deep into the lumen of the pile, so that the fluid does not get into the mucous membrane. The following technique is strictly adhered to: The patient is instructed to take a simple enema a couple of hours before coming to the office. Upon his arrival he is placed on the operating table in the Sims position; the anal region is thoroughly cleansed with soap and water, dried and wiped off with alcohol; if hemorrhoids are protruding they are cleansed and gently pushed back into place; a well-lubricated Martin anascope or Brinkerhoff fenestrated speculum is then introduced. (My choice of lubricants is Ky. as it does not smear or grease up the field of action as vaseline or other greases are apt to do.) The speculum should be gently passed its full length into the anal canal and then slowly withdrawn, until the hemorrhoids are brought into view. I then select the largest tumor and wipe its surface with a 50 per cent solution of iodine and alcohol; then using a 16 minum Luer syringe (tubercular) fitted with a short fine needle, I plunge the needle into the body of the pile near its upper border in the medium line, and inject enough of the solution to slightly distend the pile, holding the needle in situ for two or three minutes until the color of the pile becomes a grayish white. I do this also to prevent bleeding at the site of puncture, for if the needle is withdrawn too soon a spurting hemorrhage takes place and part of the injected fluid escapes along with the blood. The point of insertion is again wiped over with the iodine and alcohol solution, speculum withdrawn and patient allowed to rest on table for about five minutes, after which he is dismissed to go about his regular business. No pain, no anesthetics, no discomfort, and a well-pleased patient leaves the office with instructions to report again in two days for further treatment. At the next visit another hemorrhoid is treated and so on until the tumors in all quadrants have received the solution. Three treatments of each hemorrhoid usually completes the case, the entire time of treatment covering a period of about four weeks. Occasionally a case will take a little longer; many cases are cured by two injections, but in the worst cases a symptomatic cure will take place in four or five days. The treatment should be kept up until all evidence of hemorrhoids has disappeared.

Some patients complain of a slight bearing down sensation for an hour or two after each treatment. During the course of treatment the patient is allowed to go about his daily duties. All hemorrhage usually ceases from the time of the first treatment. Further prolapse is very unusual, painful defication and habitual constipation is relieved, patient usually reporting a large, soft, easily passed stool the morning following first treatment. This method of treatment is applicable and will be successful only in cases of uncomplicated internal hemorrhoids.

Don't try it on inflamed or strangulated hemorrhoids; first reduce the inflammation and strangulation. Don't use it and expect to get results on external thrombotic piles or inflamed skin tags or sentinal piles, and always make your injection at the highest point possible above Hilton's white line, and do not under any circumstances inject into a prolapsed hemorrhoid.

The Journal of the Florida Medical Association

Owned and published by the Florida Medical Association.

Acceptance for mailing at special rate of postage provided for in Section 1103. Act of Congress of October 3, 1917; authorized October 16, 1918.

Published monthly at St. Augustine and Jacksonville. Price $3.00 per year; 30 cents per single number.

Contributions for publication in this journal, whether scientific papers or reports of County Secretaries, should be typewritten.

Address Journal of the Florida Medical Association, St. Augustine, Florida, or 201-202 St. James Building, Jacksonville, Fla.

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PUBLISHER'S NOTE

A NEW MERCURIAL

What has been done for arsenic by the skill and patience of Ehrlich and his coworkers—that is to say, the presentation of it in a form that combines spirocheticidal activity with comparative safety of administration—has been done, it seems, for mercury also. This has long been the aim of chemical research—to find a mercurial compound that would kill the spirochete of syphilis without injuring the patient; in other words, a mercurial compound that could be administered in spirocheticidal doses.

Dr. Gruhzit, of the Parke-Davis laboratories, reports the demonstration of this property in Mercurosal administered intravenously to animals inoculated with syphilis. Two, or at the most three, doses eliminated the spirochetes completely from the syphilitic lesions. The doses corresponded to a dose of 0.2 gram for a man weighing 150 pounds, and it is believed that ten or twelve intravenous injections of a dose of this size should change a positive Wassermann to a negative in the primary stage of syphilis. Nevertheless, arsenic also (in the form of arsphenamin) or bismuth (as the salicylate) is advised, and a continuation of the treatment at intervals for two or three years.

Literature on Mercurosal is offered to physicians by Parke, Davis & Co., the manufacturers.

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